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ABSTRACT

A technique of measuring meaning was developed to allow the quantification of the meaning of a concept to a respondent. For purposes of this research, a set of scales based upon the language patterns of a large city public school children was developed. A brief review of Di Vesta's work in the development of semantic differential scales is presented. He selected 100 children in each of grades 2-6; they came from two suburban elementary schools in a predominantly middle class school district. A list of 100 nouns was read to the children and they were asked to write the first word that they would use to tell about each noun. He then computed (a) the overall frequency of occurrence of each modifier (b) the number of nouns modified by an adjective, and (c) a joint index of frequency and diversity. In the first part of the investigation, the focus was on obtaining a set of adjectives used by the population of interest; and in the second opposites were obtained. A set of 1,300 adjectives was obtained; of these, 87 were selected for use in Part II. A second sample of pupils provided the opposites for the 87 adjectives, and a set of 71 potential scales was developed. Twenty five appear on previous lists but many of the others seem more appropriate for use with the target population. (CK)

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# DEVELOPMENT OF SEMANTIC DIFFERENTIAL SCALES FOR USE WITH INNER-CITY PUPILS

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# INTRODUCTION

## The Semantic Differential

To understand the basic purpose of this investigation, one must go back to the original conception of the Semantic Differential technique in the minds of Osgood, Suci and Tannenbaum (1957). As they pointed out in The Measurement of Meaning, the purpose of this technique was to allow the quantification of the meaning of a concept to a respondent. The method to be used was one of verbal encoding, but since different subjects differed in their verbal encoding capacity, it was necessary to control for this variable by providing a series of adjectival scales. The subjects would then use the scales to describe how they felt about components of their world.

It seems that Osgood, Suci and Tannenbaum saw this as a critical part of their work. If all respondents were to be able to use these scales, they would have to be a kind of lowest common denominator of the language. Otherwise, there would be scales that certain respondents could not read, and the meaning of which was not known or unclear. There would also be words that the respondents would not use to describe the concepts or words that did not seem applicable to the concepts.

To get these scales, Osgood, Suci and Tannenbaum took a sample of 200 University of Illinois undergraduates and gave them a set of forty nouns. They asked their subjects to write down the first adjective which came to mind to describe each noun. They then selected opposites for each of the fifty most frequently used adjectives in order to establish bipolar scales. These scales were then used by another sample of 100 subjects to rate a second set of twenty concepts. The rating of the scales were then summed

across concepts and the mean values for each scale were intercorrelated. The results of the intercorrelation were factor analyzed and the three fundamental dimensions of Evaluation, Potency, and Activity appeared.

Sociolinguistic Findings and Implications for the Semantic Differential

Over the last ten years, there has been a great deal of interest in sociolinguistics. Beginning in the late 1950's, a number of investigators including Bernstein (1958, 1965, 1971), and many others have drawn attention to the differences in language used by different social classes. Although his position has undergone change and refinement over the years, Bernstein is still saying that middle class speakers tend to have what he calls an elaborated code while the lower socioeconomic classes have what he calls a restricted code. The major characteristics of the restricted code are limited and rigid use of adjectives and adverbs, and implicit meaning which is only crudely differentiated. Robinson and Creed (1968) pointed out that elaborated code users were able to point to more differences and tell more about them than restricted code users. Lawton (1963) and Raph (1967) discuss the problem of restricted and rigid use of adjectives, and their findings are in agreement with Bernstein.

Since it is through the use of adjectival scales that the Semantic Differential attempts to provide a quantified estimate of meaning, it seems clear that if a researcher is planning to use it with lower socioeconomic subjects, he had first better look at the scales he is planning to use. Osgood's scales were developed using the language pattern of college undergraduates. He saw this as an advantage and a disadvantage. It was a disadvantage since it was not a "representative cross-section of the general population (Osgood, Suci and Tannenbaum, 1957, p.32)." It was an advantage,

he felt, because "such subjects are probably more representative of the sorts of population that will be used in most applications of the final instruments; having a higher intelligence, they probably yield a clearer picture of the most finely differentiated semantic space (Osgood, Suci and Tannenbaum, 1957, p.32)." Based upon the research mentioned above, researchers working with lower socioeconomic class subjects might not see it as an advantage. Osgood's scales may not be typical of the verbal encoding patterns of this group. His semantic space dimensions may not hold up for elementary school children regardless of socioeconomic group.

If the scales are not typical of the language patterns of this group, it seems reasonable to assume that the results would be in error by some unspecified amount. Because of this possibility, it was decided to develop a set of scales based upon the language patterns of large city public school children.

Before discussing this research, a brief review of Di Vesta's work in the development of semantic differential scales seems in order since it is related to this paper (Di Vesta, 1965). It was Di Vesta's contention that "the employment of adult norms of semantic meaning in studies of the verbal behavior of children would appear, on the surface, to be of limited value (Di Vesta, 1965, p.187)." He selected 100 children in each of grades 2-6. They came from two suburban elementary schools in a predominantly middle class school district. A list of 100 nouns was read to the children and they were asked to write the first word that they would use to tell about each noun. He then computed (a) the overall frequency of occurrence of each modifier, (b) the number of nouns modified by an adjective (its diversity), and (c) a joint index of frequency and diversity (entropy).

A major difference among the three investigations is the population. Osgood studied college undergraduates; Di Vesta studied middle class, suburban pupils in grades 2-6; and this paper studied large city, primarily lower class pupils in grades 4, 6, 7, and 8. The latter two are alike in the belief that in order to use the Semantic Differential properly, scales must be developed on the population on which they are to be used.

## METHOD

The investigation was carried out in two parts. In the first part, the focus was on obtaining a set of adjectives used by the population of interest; and in the second, opposites were obtained.

### Part I - Collection of Adjectives

Nouns. A set of 51 nouns (listed in Table 1) was constructed. Rather than selecting them from existing lists, it was felt that it would be wiser to develop a list of nouns that would be typical of the things the pupils meet in their daily lives. They were selected from the categories of family, school, etc. Forty-five of the nouns were randomly assigned to one of three forms, while six are found in all three forms. Each form consisted of twenty-one nouns.

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Insert Table 1 here

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Selection of Schools and Subjects. Five schools agreed to cooperate in the program. Of the five schools, three can be described as lower socioeconomic class, the remainder as middle socioeconomic. Intact classes were used. In each school the principal was asked to make available two of his average fourth and sixth grade classes if it were an elementary school, and two of his average seventh and eighth grade classes if it were a junior high school. A total of

861 pupils were included in this study: 178 in grade four, 178 in grade six, 254 in grade seven, and 251 in grade eight.

Instruction to Subjects. The three sets of nouns were randomly distributed within classes. Pupils were told that it was a study of the words pupils used to tell about things and they were asked to write as many words as they wished that they would use to tell about each of the stimulus words. This is a departure from the procedure used by both Osgood and Di Vesta. In each of these cases, the stimulus words were read to the subjects, and they were asked to supply one adjective for each stimulus noun. It was felt that the one adjective response was too restrictive and that allowing the pupils to write more than one would provide a set of adjectives which would be more representative of the language. Those adjectives which had been used by at least ten percent of the pupils in any one grade were selected for use in Part II.

Part II - Opposites

Selection of Schools and Subjects. A separate sample of sixty-five pupils were chosen from four of the schools previously used, one of the middle class schools not being included in this part of the study. Principals were again asked to provide children from average classes in grades 4, 6, 7, and 8.

Instructions. The pupils were interviewed individually for this stage of the research and the examiners recorded their responses. They were asked to provide what they thought was the opposite for each of the stimulus words. To make sure the subjects knew what the word "opposite" meant they were asked to give the opposite of "good," "big," and "black." Those who could not were eliminated from the study.

## RESULTS

### Part I - Opposites

A total of 1,300 modifiers were supplied by pupils in this study. Of these, using the criterion of ten percent of the pupils in any one grade using the adjective, 87 were selected. They are listed in Table 2.

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Insert Table 2 here

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Thirty-one of the adjectives can be found on all lists indicating they are a kind of lowest common denominator of potential scales and might be used with any kind of population. Twenty-one more appeared on both of Di Vesta's lists and this list, and therefore would be typical of the modifiers used by elementary school children regardless of their socioeconomic level. There is, therefore, a set of fifty-two modifiers which seems quite appropriate for use with almost any kind of population (assuming satisfactory opposites would be found in Part II). It is interesting to note that despite the fact that responses were anonymous, few slang words and no "dirty" words were written.

### Part II - Opposites

All of the 87 modifiers from Part I were presented to the subjects in Part II. Seventy-two potential scales were compiled (potential because only those that load on one of the factors will be considered suitable as scales). They are listed in Table 3.

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Insert Table 3 here

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Twenty-five of the scales appear either in all three lists or in two of them. That provides a reasonably large base of scales for use in most studies. Twenty-two fall in the traditional Evaluative - Potency - Activity framework with thirteen being evaluative, six potency, and three activity.

## DISCUSSION

In most cases, in the authors' experience, researchers who plan to use the Semantic Differential turn to page 37 of The Measurement of Meaning and select as many scales as they feel they need. This has its advantages and disadvantages. On the advantage side, the dimensionality of most of the standard scales is well established so there are no surprises likely. The disadvantages can be seen by comparing the results of this study, Osgood's (as shown in The Measurement of Meaning), and Di Vesta's 1965 and 1966 studies. If the Semantic Differential is to be used with a study of the school populations, then not all of Osgood's scales would appear to be appropriate. Only twenty-one of Osgood's scales can be found both on this list and on Di Vesta's. Four others were found both on this list and Di-Vesta's, but not on Osgood's. They would also seem appropriate. The important differences seem to be (1) the scales being left out, and (2) what the pupils perceive as the opposite in many of the scales.

In the first instance, there are a whole series of potentially valuable evaluative scales relating to (a) relationship with adults: strict-nice, easy-hard, mean-nice, mean-kind, unkind-kind, rough-gentle, and rough-soft which seem more in line with the children's language patterns than the usual kind-cruel; (b) evaluation of Activity scale examples are: dull-exciting, boring-exciting, boring-interesting, interesting-dull, and interesting-uninteresting. Comparable Osgood scales might be pleasant-unpleasant or valuable-worthless; a bit fancy for most inner-city children; (c) three scales children like to use to describe other children that don't show up elsewhere are intelligent-dumb, smart-dumb and smart-stupid; and (d) to describe

physical characteristics, there are ugly-handsome and ugly-cute instead of ugly-beautiful, the last of which does not appear as often in the pupils' responses.

In addition, there is the apparent difference in what pupils see as opposites in the scales. Twelve of the scales that were turned up in this study had one of Osgood's poles but not the other. Whether Osgood's scale is more appropriate did not seem to be a thing that should be decided on a priori basis by researchers. The decision as to which to use was left in the hands of the factor analysis. Whichever one survived (clearly loaded on a scale) would be used.

## CONCLUSION

A review of the literature indicated that there had been no studies which developed semantic differential scales based upon the language patterns of inner-city elementary school children. This study was designed to do that.

The study was divided into two parts. In Part I, a set of 1,300 adjectives were obtained. Of these, eighty-seven were selected for use in Part II: Obtaining Opposites. A second sample of pupils provided us with opposites for the eighty-seven adjectives, and a set of seventy-one potential scales was developed. Twenty-five appear on previous lists but many of the others seem more appropriate for use with the target population.

TABLE 1.

Sets of Stimulus Nouns

| Set A | Set B | Set C |
|---|---|---|
| Fire | Chair | Fighting |
| Noise | Girls | Television |
| Athlete* | Train* | Teenagers* |
| Bed | School | Tests |
| Car | Adults | Work |
| Teenagers* | Parents* | Parents* |
| Flying | Swim | Grandmother |
| Sister | Desk | Tomorrow |
| Run* | Athlete* | Train* |
| Children | Astronauts | Street |
| Baby | Teacher | Home |
| Walk* | Walk* | Run* |
| Studying | Boys | Me |
| Apple | War | River |
| Train* | Run* | Athlete* |
| Brother | Principal | Story |
| Moon | Throw | Prison |
| Parents* | Teenagers* | Walk* |
| Luck | Homework | Class |
| Woman | Cowboy | Book |
| Man | Yesterday | Tree |

*Found in all three sets.

TABLE 2.

List of Adjectives Selected From Among 1,300
Provided by Pupils in Grades 4, 6, 7 and 8

| | | | |
|---|---|---|---|
| Awful* | Sad* | Pretty+ | Stupid..(D) |
| Bad* | Short* | Quiet+ | Angry- |
| Beautiful* | Small* | Round+ | Boring- |
| Black* | Soft* | Smart+ | Comfortable- |
| Blue* | Strong* | Tall+ | Dumb- |
| Bright* | Thin* | Terrible+ | Exciting- |
| Clean* | Ugly* | Warm+ | Female- |
| Cold* | White* | Wonderful+ | Friendly- |
| Dirty* | Wide* | Brave. | Fun- |
| Fast* | Big+ | Green. | Intelligent- |
| Good* | Colorful+ | High. | Interesting- |
| Green* | Dangerous+ | Rough. | Loving- |
| Happy* | Easy+ | Sweet. | Male- |
| Hard* | Fat+ | Weak. | Muscular- |
| Hot* | Funny+ | Young. | OK- |
| Kind* | Great+ | Bloody..(D) | Skinny- |
| Large* | Helpful+ | Cute..(D) | Square- |
| Long* | Horrible+ | Dull..(O) | Strict- |
| Loud* | Huge+ | Handsome..(D) | Tiring- |
| Nice* | Little+ | Healthy..(O) | Understanding- |
| Old* | Mean+ | Noisy..(D) | Unneccessary- |
| Red* | New+ | Slow..(O) | |

*Appears in Di Vesta's 4th and 6th grade lists and Osgood's list.

+Appears in Di Vesta's 4th and 6th grade lists but not in Osgood's list.

.Appears in one of Di Vesta's lists and Osgood's lists.

..Appears in one of Di Vesta's lists or Osgood's list.
(Initial following indicates which one.)

-Appears only in this study.

TABLE 3.

List of Seventy-One Potential Scales Derived From Part II

Weak-Strong*
Cold-Hot*
Good-Bad*
Fast-Slow*
Soft-Hard*
Long-Short*
Dull-Sharp*
Rough-Smooth*
Sweet-Sour*
Black-White..(O)
Beautiful-Ugly..(O)
Red-Blue..(D)
Round-Square..(D)
Big-Little..(D)
Clean-Dirty..(O)
New-Old..(D)
Small-Large..(O)
Sad-Happy..(O)
Ugly-Pretty..(D)
Awful-Nice..(O)
Wide-Narrow..(O)
Young-Old..(O)
High-Low..(O)
Bright-Dark..(O)
Brave-Cowardly..(O)
Loud-Soft..(O)
Cold-Warm.
Fat-Skinny.
Strict-Nice.
Mean-Nice.
Easy-Hard.
Yellow-Green.
Blue-Green.
Male-Female.
Rough-Gentle.
Rough-Soft.
Boring-Exciting.
Dull-Exciting.
Uninteresting-Interesting.
Interesting-Dull.
Boring-Interesting.
Tall-Short.
Big-Small.
Intelligent-Dumb.
Smart-Dumb.
Smart-Stupid.
Kind-Mean.
Kind-Unkind.
Dull-Colorful.
Dull-Bright.
Loud-Quiet.
Awful-Wonderful.
Awful-Good.
Fat-Thin.
Angry-Happy.
Wide-Thin.
Unnecessary-Necessary.
Warm-Cool.
Comfortable-Uncomfortable.
Dangerous-Safe.
Healthy-Sick.
Healthy-Unhealthy.
Muscular-Weak.
Noisy-Quiet.
Loving-Hating.
Brave-Scared.
Huge-Tiny.
Huge-Small.
Ugly-Handsome.
Ugly-Cute.
Friendly-Unfriendly.

*Appears in Di Vesta's (1966) and Osgood's (1957) Lists.

.Appears only in this study.

..Appears in Di Vesta's or Osgood's Lists.
(Initials indicate which.)

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